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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/590,500

08/24/2006

Kurt Behre

06-467

1083

34704 7590 12/21/2009

BACHMAN & LAPOINTE, P.C.

900 CHAPEL STREET

SUITE 1201

NEW HAVEN, CT 06510

EXAMINER

KENNEDY, TIMOTHY J

ART UNIT

PAPER NUMBER

1791

MAIL DATE

DELIVERY MODE

12/21/2009

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/590,500	<b>Applicant(s)</b> BEHRE, KURT	
	<b>Examiner</b> TIMOTHY KENNEDY	<b>Art Unit</b> 1791	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 17 September 2009.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 33,34,36-40,45,46 and 51-62 is/are pending in the application.
- 4a) Of the above claim(s) 52-62 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 33,34,36-40,45,46 and 51 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 August 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                    | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)         | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Response to Amendment***

1. By way of the amendment filed 9/17/2009: claims 1-32, 35, 41-44, and 47-50 are canceled, claims 33 and 46 are amended, claims 34, 36-40, 45, and 51 were previously presented, and claims 52-62 are withdrawn.

### ***Drawings***

2. The objections to the drawings are withdrawn.

### ***Claim Rejections - 35 USC § 112***

3. The rejection of claim 46 under 35 USC 112 second paragraph is withdrawn.

### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

1. Claims 33, 34, 36, 38, 39, 45, 46, and 51 and rejected under 35 U.S.C. 103(a) as being unpatentable over Sprengling (U.S. Patent 4,496,415, already of record), in view

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of Loubinoux (WO 02/070806, using U.S. PGPub 2004/0082244 for English equivalent, already of record) and Middelman (U.S. Patent 5,269,863, already of record).

Regarding claim 1, Sprengling teaches:

2. In which method a first web-like fibre structure is supplied to a fibre laying device, by means of in-line fibre feed units one or more further web-like fibre structures are arranged over the first fibre structure, by means of one or more matrix feed units connected before or after the fibre feed units a matrix starting material is supplied to exposed layers of fibre structures, and the multilayer fibre web emerging from the fibre laying device and coated one or more times with intermediate layers of matrix starting material is supplied to a continuous press in which the matrix starting material is transformed under the effect of heat and/or pressure into a low viscosity fluid and the multilayer fibre web under impregnation of the fibre structure is pressed into a plate-like plastics material (Figure 1, column 3 line 34 to column 5 lines 53)

3. Sprengling does not teach:

4. Wherein at least one fibre feed unit is formed as a cross layer by means of which a web-like flat structure which is supplied diagonally to the advance direction of the fibre web is applied to the fibre web by regular folding thereof along the side edges of the fibre web.

5. In the same field of endeavor Loubinoux teaches applying a fiber web as a cross layer that is folded (Figure 2).

6. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the folded cross layers as taught by Loubinoux, using the

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Sprengling method, since the application of folded cross layer increases the mechanical properties of the final product (paragraphs 0025-0026).

7. The process of Sprengling and Loubinoux does not teach:

8. Wherein alternately a web-like fibre structure is supplied unfolded in the advance direction of the fibre web and a subsequent web-like fibre structure is supplied by means of cross layers crossing diagonally to the feed direction of the fibre web, where the first and last fibre structures which are supplied are supplied unfolded in the advance direction of the fibre web to produce a thermoplastic plate material comprising at least two diagonally folded fibre structures separated by an unfolded fibre structure arranged between the first and last unfolded fibre structures.

9. In the same field of endeavor Middelman teaches creating a five layered fiber structure where the first, third, and fifth fiber layers are unfolded and oriented in the advance direction (Figure 5). The second and fourth layers of the Middelman structure are oriented ninety degrees to the advance direction. Middelman teaches that having multiple layers together increases the strength of the fiber product (column 11, line 68 through column 12, line 3)

10. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the Sprengling and Loubinoux process to create a five layered fiber structure as taught by Middelman, since it would provided greater strength.

11. Regarding claim 34, Loubinoux further teaches:

12. The web-like surface structure is supplied and folded at an angle of 45° to the advance direction of the fibre web (paragraph 0026)

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13. Regarding claim 36:

14. The matrix feed units are in each case arranged after a fibre feed unit with cross layer

15. As previously discussed Sprengling and Loubinoux teach a process for laying down webs some of which are folded as a cross layer.

16. Sprengling further teaches the application of a resin powder between layers as seen in Figure 1 parts 7-10.

17. Regarding claim 38, Sprengling further teaches:

18. The matrix feed units are powder scatterers by means of which the matrix starting material which is present in powder form is scattered onto a layer of an exposed fibre structure (Figure 1 parts 7-10)

19. Regarding claim 39, Sprengling further teaches:

20. By means of matrix feed supply units, a film-like matrix starting material is applied to the exposed surface of a fibre structure (column 3, lines 46-64)

21. Regarding claims 45 and 46:

22. Claim 45) The multilayer fibre web, after supply of all fibre structures and all matrix starting materials and before entry into the continuous press, is coated on one or both sides with a cover layer in the form of a plastics foil or extruded plastics film, where in the continuous press the cover layer connects to the plastics matrix of the multilayer fibre web

23. Claim 46) The cover layer comprises thermoplastic plastics

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24. Sprengling teaches the application of metal foils (Figure 1 parts 16 and 17, column 4, lines 48-52) instead of a plastic foil.

25. It would have been obvious to one having ordinary skill in the art the time the invention was made to use a plastic foil instead of a metal foil, since there are only two types of foil available to a skilled artisan (polymer based and metallic based) and only three types of polymers (thermoplastic, thermoset, and elastomer). It has been shown that a person of ordinary skill has good reason to pursue the known options in their art. If this lead to an anticipated success, it is likely that it was not due to innovation but of ordinary skill and common sense. *KSR International Co. v. Teleflex Inc.*, 82 USPQ2d 1385, 1397 (2007).

26. Regarding claim 51, Sprengling and Loubinoux as previously discussed teach:

27. The multilayer fibre web is guided through one or more impression cylinders which are arranged in the continuous press, whereby the multilayer fibre web undergoes a complete bubble-free impregnation of the fibre structure with the melt-like plastics matrix

28. Sprengling teaches the use of four cylinders in the continuous press (Figure 1, parts 26 and 27), but those cylinders are not considered impression cylinders.

29. Loubinoux teaches the use of a pair of cylinders (Figure 1, part 12) within a continuous press.

30. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the rollers as taught by Loubinoux, using the Sprengling process, since doing so would create a unitary structure. Eventhough Sprengling does

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not exactly teach impression rollers, the process Sprengling teaches creates a unitary structure (column 5, lines 3-34)

31. Claims 37 and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sprengling, Loubinoux, and Middelman as applied to claim 33 above, and further in view of Cook et al (U.S. Patent 5,191,013, herein Cook). Regarding claim 37, Sprengling, Loubinoux, or Middelman do not teach:

32. The matrix starting material is a reactive starting material containing cyclic or macrocyclic oligomers of polyester mixed with a polymerisation catalyst, in particular a reactive starting material containing cyclic oligomers of PBT (CPBT) mixed with a polymerisation catalyst

33. In the same field of composite processing, Cook teaches the use of the claimed thermoplastic composition for use in fiber composites (Abstract, column 1, lines 8-23, and column 2, lines 18-29), as compared to the thermoset as taught by Sprengling.

34. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the composition as taught by Cook, using the process as taught by Sprengling, Loubinoux, and Middelman, since the composition claimed have excellent properties including solvent resistance (Abstract).

35. Regarding claim 40:

36. The reactive starting material is polymerised in the continuous press into a thermoplastic plastics matrix



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37. Using the composition taught by Cook, that was discussed regarding claim 37, the heating press of Springling is capable of reaching 250°C (column 5, lines 18-20), which is able to reach the polymerization temperature as described by the Applicants of 180-190°C.

***Response to Arguments***

38. Applicant's arguments have been considered but are moot in view of the new ground(s) of rejection.

39. Applicants argue that the Sprengling and Loubinoux reference singularly or combined do not teach:

40. “Wherein alternately a web-like fibre structure is supplied unfolded in the advance direction of the fibre web and a subsequent web-like fibre structure is supplied by means of cross layers crossing diagonally to the feed direction of the fibre web, where the first and last fibre structures which are supplied are supplied unfolded in the advance direction of the fibre web to produce a thermoplastic plate material comprising at least two diagonally folded fibre structures separated by an unfolded fibre structure arranged between the first and last unfolded fibre structures.”

41. The Examiner agrees, that is why as shown in the above Office Action, Sprengling, in view of Loubinoux and Middelmann make the newly amended claim 33 obvious. Since creating a five layered fiber structure would have higher strength as shown by Loubinoux and Middelmann.

***Conclusion***

42. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to TIMOTHY KENNEDY whose telephone number is (571) 270-7068. The examiner can normally be reached on Monday to Friday 9:00am to 6:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Del Sole can be reached on (571) 272-1130. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

tjk

/Joseph S. Del Sole/  
Supervisory Patent Examiner, Art Unit 1791